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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,364	12/19/2001	Kuang-Yeh Chang	NAUP0409USA	3924

27765 7590 03/01/2004

NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE)
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER


WARREN, MATTHEW E

ART UNIT PAPER NUMBER

2815

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p>09/683,364</p>	<p>Applicant(s)</p> <p>CHANG ET AL.</p>	
	<p>Examiner</p> <p>Matthew E. Warren</p>	<p>Art Unit</p> <p>2815</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Election filed on October 31, 2003.

Election/Restrictions

Applicant's election of claims 20-28 in Paper No. 20031031 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 20031031.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 20 discloses the limitation of "the source/drain being in the active area not covered by the gate." The applicant's drawings (fig. 11) show that the gate layer

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(214) is formed above the source drain regions (215/216). The specification also does not disclose that the active area is not covered by the gate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's prior art figure (APAF) in view of Yamazaki et al. (US 6,677,613 B1).

In re claim 20, the APAF 7 shows a microdisplay pixel cell device, the device comprising a semiconductor substrate defined with a plurality of active areas at least one gate (52), the gate covering a portion of the active area, at least one source/drains (63/64), the source/drain being in the active area, and a first dielectric layer (66) the first dielectric layer covering the gate and the source/drain. The first dielectric layer comprises at least one row select contact plug (68) to electrically connect to the gate and at least one row select line, the row select line being atop the first dielectric layer, the row select line being electrically connected to the gate through the row select contact plug. There is at least one pixel cap top plate (42) on the first dielectric layer, at least one capacitor dielectric layer (45), the capacitor dielectric layer being atop the surface of the top plate; and at least one pixel cap bottom plate (54). The APAF 7 shows all of the elements of the claims except the second dielectric layer being atop the

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first dielectric layer. Yamazaki et al. shows (figs. 1A-3) a pixel cell device comprising a first dielectric layer (125) formed over a gate (109), and a second dielectric layer (134) formed on the first dielectric layer. Yamazaki also shows a pixel cap bottom plate (139) being atop the second dielectric layer and covering a capacitor top plate (135) and a capacitor dielectric layer (135). With the capacitor being formed simultaneously being formed with the light shielding layer, the area of the pixel electrode could be reduced and a sufficient capacitance could be provided (col. 9, lines 29-35).

In re claim 21, the APAF 7 shows that the gate comprises a gate oxide layer (44), a polysilicon layer or a metal silicide layer.

In re claim 22, Yamazaki et al. shows (fig. 3) at least one first contact plug is comprised in the first dielectric layer and the second dielectric layer for electrically connecting the source (146) and the top plate.

In re claim 23, Yamazaki et al. shows (fig. 3) at least one second contact plug (145) is comprised in the first dielectric layer and the second dielectric layer for electrically connecting the drain to a video data line.

In re claim 24, the APAF 7 discloses (pg. 4, para. [0014]) that the row select line is composed of a metal and is used as a scan line of the microdisplay.

In re claim 25, the APAF 7 discloses (pg. 4, para [0016]) that both the bottom plate and the top plate are composed of a metal.

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In re claim 26, Yamazaki et al. discloses (col. 6, lines 43-52 and col. 9, lines 1-7) that both the bottom plate and the top plate are composed of titanium (Ti), titanium nitride (TiN), aluminum (Al), copper (Cu) or an alloy of above-mentioned materials.

In re claim 27, the APAF 7 discloses (pg. 2, para. [0007]) the pixel cell comprises two gates, two common drains, four sources, four top plates and one bottom plate stacking in sequence from bottom to top.

In re claim 28, the APAF 7 discloses (pg. 2, para. [0006]) that the microdisplay is a reflective liquid crystal on silicon (LCOS) display.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ohtani et al. (US 6,313,481 B1), and Yamazaki et al. (US 6,118,506) also disclose micropixel display devices having capacitors formed over second dielectric layers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thurs, and alternating Fri, 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW
MEW
February 16, 2004

A. Wilson
ALLAN R. WILSON
PRIMARY EXAMINER